

Claims

What is claimed is:

1. In a motor vehicle airbag system, having a module **(101)** with a plurality of igniters **(102,103)** for causing an airbag to inflate, a diagnostic monitor **(119)** that determines if a collision is occurring and initiates the igniters, and first and second pairs of wires **(111,112)** and **(115, 116)** extending between the module **(101)** and the monitor **(119)**, the improvement comprising:

a manually operable switch **(23)** having portions thereof connected to each of the first wires **(111,115)** of each said pair of wires for selectively providing continuity through the first wires between the monitor **(119)** and each of the igniters **(102,103)** while in an ON position and for selectively breaking continuity through the first wires between the monitor **(119)** and each of the igniters **(102,103)** while in an OFF position;

a single common resistor **(160)** connected to the second wire **(112,116)** of each said pair of wires **(111,112)** and **(115,116)** and connected to the switch **(23)**, so that while in the OFF position, the switch places said single, common resistor **(160)** in series circuit relatively between the first and second wires in each said pair of wires **(111,112)** and **115,116)**; and

wherein the common resistor **(160)** has an impedance similar to that of each igniter**(102,103)**, so as to provide a false indication to the monitor **(119)** that

electrically conductive continuity exists with each igniter **(102,103)** while the switch **(23)** is in the OFF position.

2. The airbag system according to claim 1, further comprising a filter circuit **182, 180** so that inductively induced electromagnetic waves are removed when the airbag switch is in the ON position, by passing these waves through the capacitor **(180)** to ground **(181)**, rather than allowing these electrical impulses to reach the airbag detonators **(102,103)** and cause an unintended detonation.

3. The airbag system according to claim 1, further comprising an optical signal device **(25)** connected to the switch **(23)** to provide an optical signal while the switch **(23)** is in the OFF position.

4. The airbag system according to claim 1 wherein the switch **(23)** includes a pole **(32,33)** connected to each of the first wires **(111,115)**, the poles **(32,33)** being movable in unison when the switch **(23)** moves between the ON and OFF positions.

5. The airbag system according to claim 1, further comprising:

a housing **(22)** adapted to be mounted within the motor vehicle, the switch **(23)** and the resistor **(160)** being located within the housing **(22)**, the switch **(23)** having a manual engagement portion located on an exterior of the housing **(22)** for engagement by a user.

6. The airbag system according to claim 1, further comprising:

a housing **(22)** adapted to be mounted within a motor vehicle, the switch **(23)** and the resistor **(160)** being located within the housing **(22)**, the

switch **(23)** having a manual engagement portion located on an exterior of the housing **(22)** for engagement by a user, and

an optical device **(25)** connected to the switch **(23)** for providing an optical signal while the switch **(23)** is in the OFF position, the optical signal device being mounted to the exterior of the housing **(22)**.

7. In a motor vehicle airbag system, having a module **(101)** with a plurality of igniters **(102,103)** for causing an airbag to inflate, a diagnostic monitor **(119)** that determines if a collision is occurring and initiates the igniters , and first and second sets of wires **(111,112)** and **(115,116)** extending between each of the igniters and the monitor for conveying signals between the module **(101)** and the monitor **(110)** , the improvement comprising:

a break **(121,122)** in the first wire **(111,115)** of each set of wires **(111,112)** and **(115, 116)** respectively, interrupting electrically conductive continuity between the monitor **(119)** and each of the igniters **(102)** and **(103)** respectively;

a housing **(22)** adapted to be mounted in a passenger compartment of the motor vehicle;

a first pair of leads **(135,138)** from the airbag switch **(23)** connected to each of the first wires **(111,115)** respectively, and a second pair of leads **(137,140)** from the airbag switch **(23)** connecting to the airbag igniters **(102,103)** each set of said first and second pairs of leads extending into the housing **(23)**; one, common resistor **(160)** mounted in the housing **(22)**; a manually operable switch **(23)** mounted in the housing **(22)** and having a manual engagement actuator **(24)** on an exterior of the housing **(22)**,

the switch (23) having a pole (32,33) for each igniter (102,103) respectively, each of the poles (32,33) being connected to one of the first wires (111,115) respectively, of each of the sets of wires (111,112) and (115,116), each of the poles having an ON position that connects the first wires (111,115) in electrically conducting relationship between said monitor (119) and said ignitors (102,103) respectively, each of the poles (32,33) having an OFF position that breaks said electrically conducting relationship and connects said first wires (111,115) with the one common resistor (160), the one common resistor (160) being electrically connected to the second wire (112,116) in each wire set so that while in an OFF position, the poles (32,33) place the resistor (160) in series between the first and second wires (111,112) and (115,116) of each set of wires, the resistor (160) having an impedance similar to that of each of the igniters (102,103) so as to avoid a fault signal by the monitor (119) while the switch (23) is in the OFF position.

8. The airbag system according to claim 7, wherein the switch (23) has at least three poles and is a double-throw.

9. A method of controlling airbag deployment of a motor vehicle airbag system having a module (101) with a plurality of igniters (102,103) for causing an airbag to inflate, a diagnostic monitor (119) that determines if a collision is occurring and initiates the igniters, first (111,115) and second (112,116) wires extending between each of the igniters (102,103) and the monitor (119) for conveying signals between the module (101) and the monitor (119), the method comprising the steps of:

severing each of the first wires (111,115) between the igniters (102,103) and the monitor (119), creating a pair of ends (138,135) for each of the first wires

(111,115);

connecting a portion of a manually operable switch **(23)** to the ends **(135,138)** of each of the first wires **(111,115)**;

connecting one side of a resistor **(160)** to each of the second wires **(112,116)** and the other side to the switch **(23)**, the one resistor **(160)** having an impedance similar to each of the igniters **(102,103)**;

placing the switch in an ON position, providing electrically conductive continuity in the first wires **(111,115)** between the monitor **(119)** and each of the igniters **(102,103)**; then placing the switch in an off position, breaking continuity in the first wires **(111,115)** between the monitor **(119)** and each of the igniters **(102,103)** and simultaneously placing the common resistor **(160)** in series between the first and second wires **(111,112)** and **(115,116)** and the monitor **(119)**, the resistor **(160)** having an impedance similar to each of the igniters **(102,103)** so as to provide a false indication to the monitor **(119)** that electrically conductive continuity exists between the igniters **(102,103)** and the monitor **(119)** while the switch is in the OFF position.

10. The method as recited in claim 8, further comprising the steps of:

providing an illuminated signal while the switch **(23)** is in the OFF position.

11. The airbag system according to claim 1, further comprising:

A filter circuit **(180,181,182)** connected to each of said first wires **(111,115)** to reduce the possibility of unintentional detonation from inductive reactance created by electromagnetic waves, such as radio frequency waves or similar sources.